

PROVINCE: **BATANGAS**
SPOT No. : **Bs-48(1/2)**

NAME OF ROAD : **LAUREL JCT.-TAMAYO JCT. ROAD**
ROAD CLASSIFICATION: **PROVINCIAL ROAD**

TYPE OF DISASTER : **PERMANENT BRIDGE OTHER DAMAGE**

DRAWING NO.
102

Batangas Spot No. 48 (BS-48)

1) General Situation

- Disaster Classification: FBR-D
- Road Name: Agoncillo Jct. - Laurel
- Location : km. 0+400 from Laurel Jct. to Bugaan
- Road Class/Office Concerned: Provincial Road/Provincial Eng'g Office

- Municipalities/Barangays connected:

The section is a minor road connecting Laurel Town Proper and Brgy. Tamayo.

- Road Width/Pavement Width: 7.5m
- Pavement Type: Gravel
- Surface Condition: Very Bad
- Detour: None

2) Damage Identified

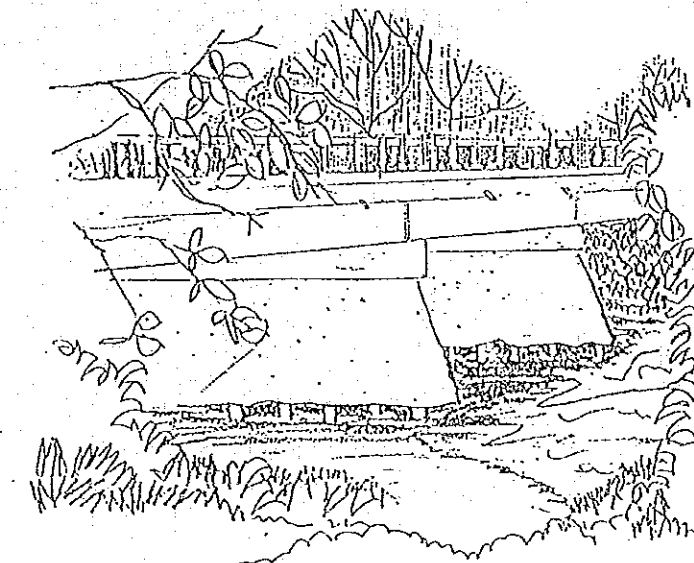
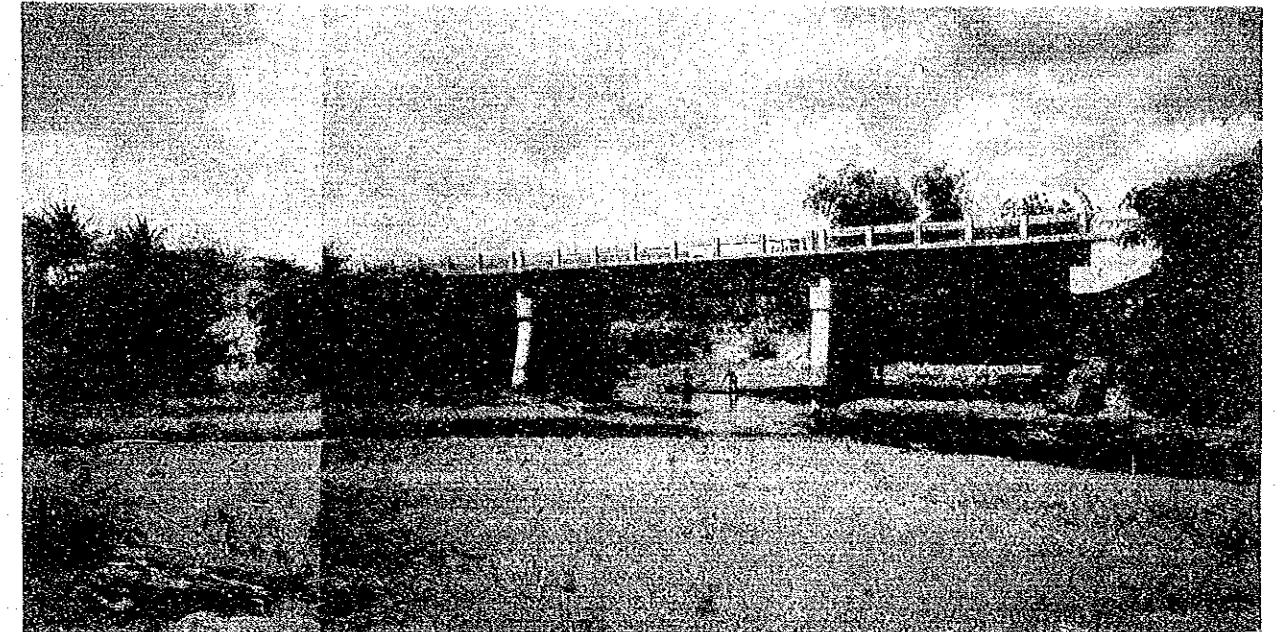
- Type of Disaster: Permanent Bridge Damage (Expose of Pile)
- Magnitude of Damage: 1.0 to 1.20 meters
- Date Noticed:
- Degree/Period of Traffic Interruptions: Low/None
- Description of Disaster:

The existing 3 span, 2 lane RCDG Alas-as Bridge with a total length of 34.5m was constructed over two converging rivers, to mention the Alas-as and San Gabriel rivers. The height of the bridge based from the original river bed was 7.9 meters. Continuous scouring of the river bed due to turbulence of water has lowered down the elevation of the river bed thereby exposing the pier footing. To date the height of the bridge based from existing river bed is 9.9 meters. The sheet piles that protect the approach of the bridge were damaged by strong typhoon that hit Batangas Province sometime in 1984. To date absence of embankment protection has caused the scouring of the approach.

3) Causes of Damage

Causes of damage are due to the following reasons:

- The bridge was constructed on a wrong choice of site.
- Piers/abutments not in line with the flow of water.
- Caused by the turbulence of water due to confluence of two streams.



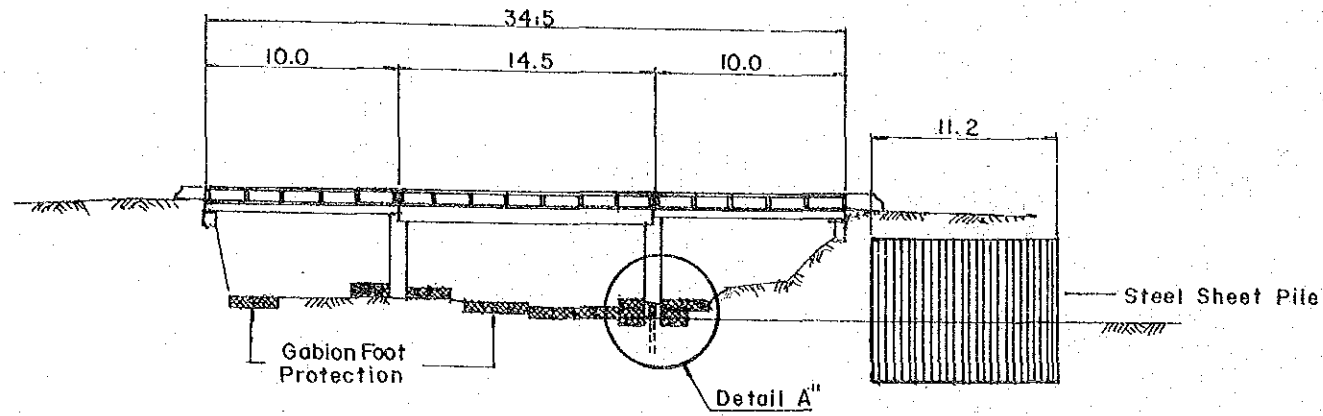
VIEW

PROVINCE : **BATANGAS**
 SPOT No. : **Bs-48(2/2)**

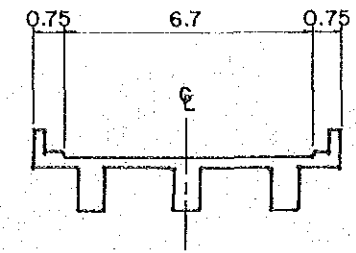
NAME OF ROAD : **LAUREL JCT. - TAMAYO JCT. ROAD**
 ROAD CLASSIFICATION : **PROVINCIAL ROAD**

TYPE OF DISASTER : **PERMANENT BRIDGE OTHER DAMAGE**

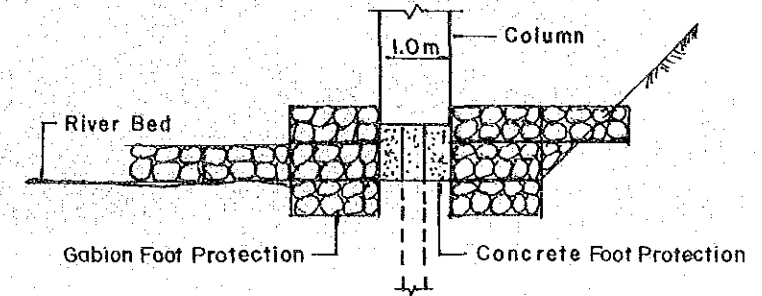
DRAWING NO. : **103**



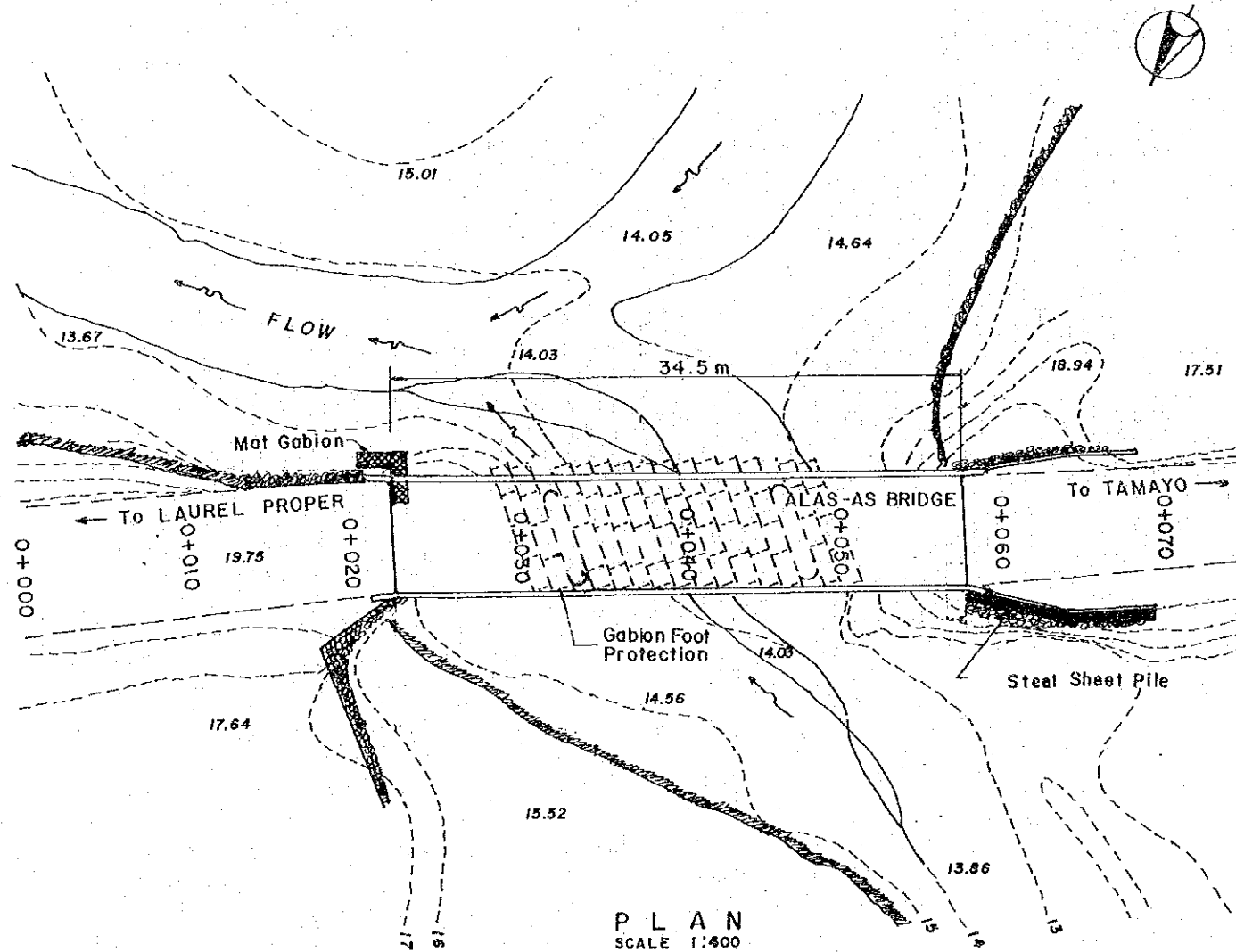
ELEVATION
 SCALE 1:400



CROSS SECTION
 SCALE: 1:200



DETAIL A''
 SCALE 1:100



PLAN
 SCALE 1:400

SUMMARY OF QUANTITY

TYPE OF WORK		UNIT	TOTAL
PERMANENT RESTORATION			
P6-10	SHEET PILE WALL	L.M.	224
P16-1	CONCRETE FOOT PROTECTION	CU.M.	5
P16-2	GABION FOOT PROTECTION	CU.M.	90

PROVINCE: **BATANGAS**
SPOT No. : **Bs-50 (1/2)**

NAME OF ROAD : **STA MARIA-BANOYO-SAN LUIS ROAD**
ROAD CLASSIFICATION : **PROVINCIAL ROAD**

TYPE OF DISASTER : **TEMPORARY BRIDGE OTHER DAMAGE**

DRAWING NO.
104

Batangas Spot No. 50 (BS-50)

1) General Situation

- Disaster Classification: TBr-D
- Road Name: Banoyo Jct. - San Luis Jct.
- Location : km. 0+550 from Banoyo Jct. to Baguilawa
- Road Class/Office Concerned: Provincial Road/Provincial Eng'g Office
- Municipalities/Barangays connected:
The section is a minor road connecting Brgy. Banoyo and San Luis Town Proper.
- Road Width/Pavement Width: 8.8m/3.0m
- Pavement Type: AC
- Surface Condition: Very Bad
- Detour: None

The characteristic topography from San Luis proper is generally flat to hilly as we proceed to Ligpo Point.

Recent alluvium comprises the materials around the vicinity consisting of unsorted and unconsolidated clays, silt, sand, gravel, volcanic and limestone fragments - deposited in riverbanks, floodplains, riverbeds and coastal plains. Coastline is also characterized by the presence of coral rocks (coralline limestone).

2) Damage Identified

- Type of Disaster: Temporary Bailey Bridge Damage (Approach Scouring)
- Magnitude of Damage: Approach 30 cm; Pier 15 cm
- Date Noticed:
- Degree/Period of Traffic Interruption: Low/None
- Description of Disaster:

A bailey bridge with a total length of 27 meters (3 spans) is presently crossing Banoyo River along Banoyo Jct. - San Luis Jct. Provincial Road, facing Balayan Bay. The bridge was originally constructed as one span in 1969.

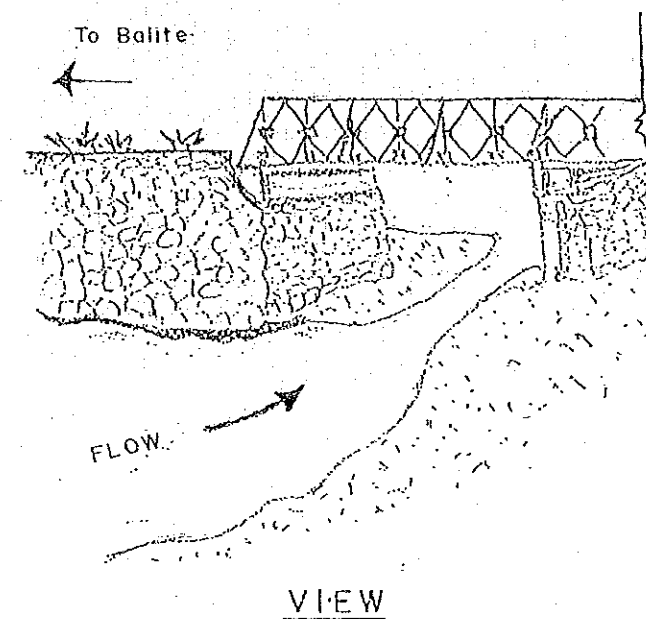
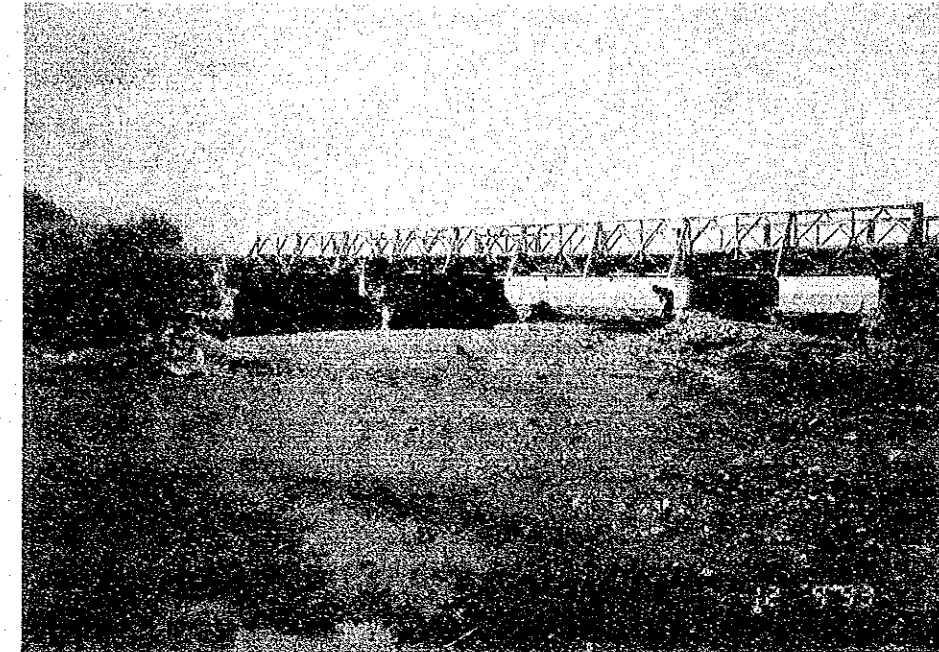
After the construction, flood currents continued to scour the left bank which is composed of fluvial deposits on the upstream side of the bridge. Finally the left side approach facing Balayan Bay was completely washed away, so another span was extended in 1977.

To strengthen the bridge, additional pier was constructed in 1985. However, up to the present time, flood currents are threatening to wash away again the left approach.

3) Causes of Damage

Causes of Damage were due to the following:

- Meandering river channel to a moderate degree.
- Accumulations of sandy sediments under the bridge due to strong wave action causing the river channel to change its course.

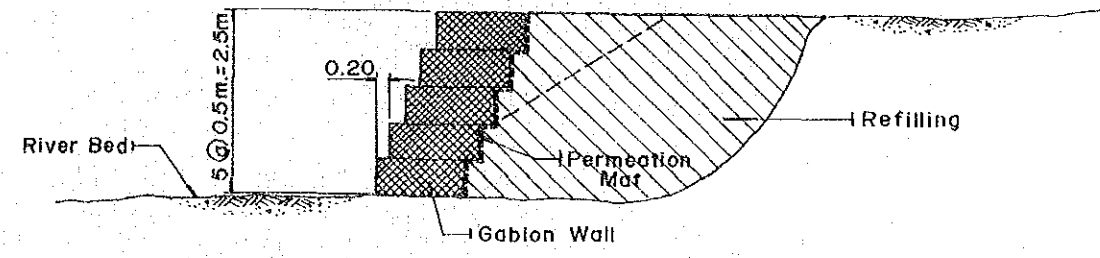
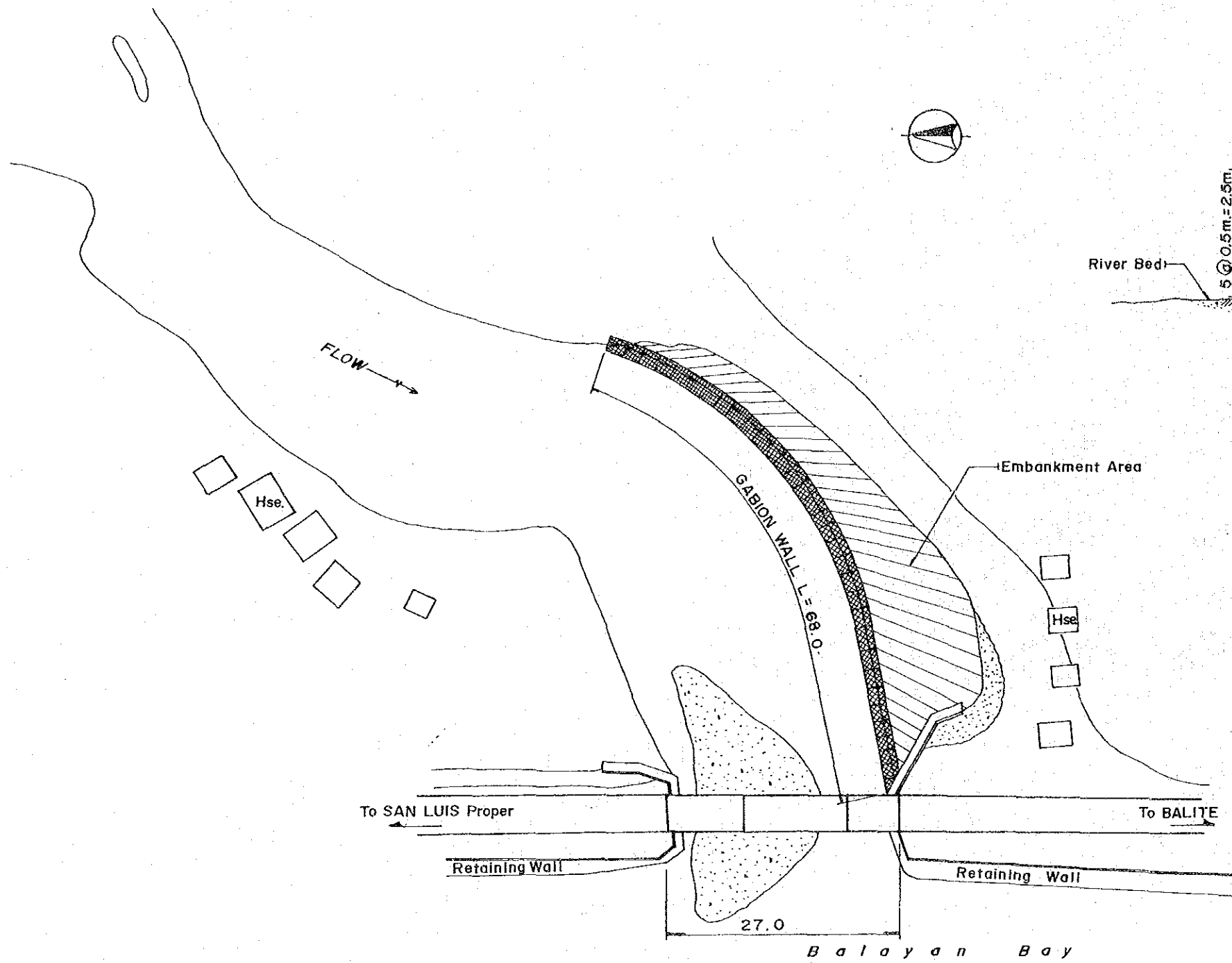


PROVINCE: **BATANGAS**
 SPOT No. : **Bs-50 (2/2)**

NAME OF ROAD : **STA. MARIA - BANOYO - SAN LUIS ROAD**
 ROAD CLASSIFICATION : **PROVINCIAL ROAD**

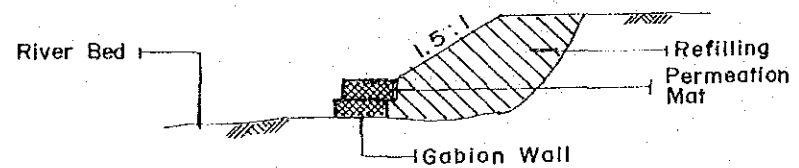
TYPE OF DISASTER: **TEMPORARY BRIDGE OTHER DAMAGE**

DRAWING NO.
105



CROSS SECTION OF RIVER BANK PROTECTION
 SCALE: 1:100

P L A N
 SCALE: 1:800



CROSS SECTION FOR URGENT RESTORATION
 SCALE: 1:200

SUMMARY OF QUANTITY

	TYPE OF WORK	UNIT	TOTAL
PERMANENT RESTORATION			
P1-3	REFILLING/EMBANKMENT	CU.M.	85
P6-9	GABION WALL	CU.M.	122
URGENT RESTORATION			
U1-4	REFILLING/EMBANKMENT	CU.M.	816
U4-2	GABION WALL	CU.M.	82

PROVINCE: **BATANGAS**
SPOT No. : **Bs-51(1/2)**

NAME OF ROAD : **STA. MARIA-BANOYO-SAN LUIS ROAD**
ROAD CLASSIFICATION : **PROVINCIAL ROAD**

TYPE OF DISASTER : **SEA WALL DAMAGE**

DRAWING NO.
106

Batangas Spot No. 51 (BS-51)

1) General Situation

- Disaster Classification: SW-D
- Road Name: Banoyo Jct. - San Luis Jct.
- Location : km. 0+650 from Banoyo Jct. to Baguilawa
- Road Class/Office Concerned: Provincial Road/Provincial Eng'g Office

- Municipalities/Barangays connected:

The section is a minor road connecting Brgy. Banoyo and San Luis Town Proper.

- Road Width/Pavement Width: 8.8m/3.0m
- Pavement Type: AC
- Surface Condition: Very Bad
- Detour: None

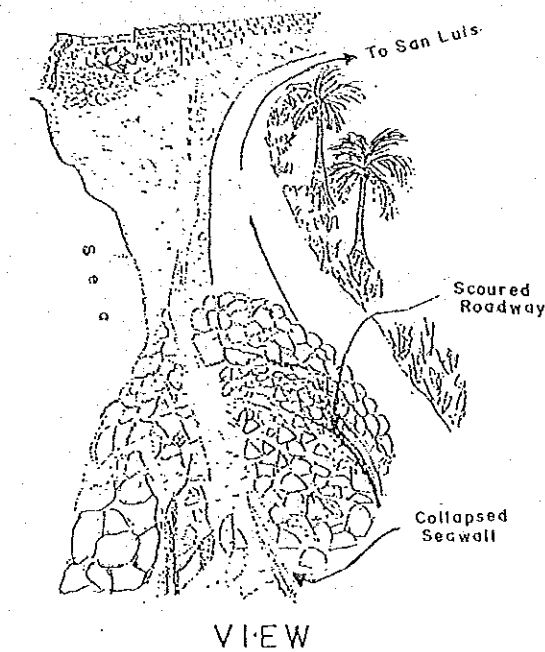
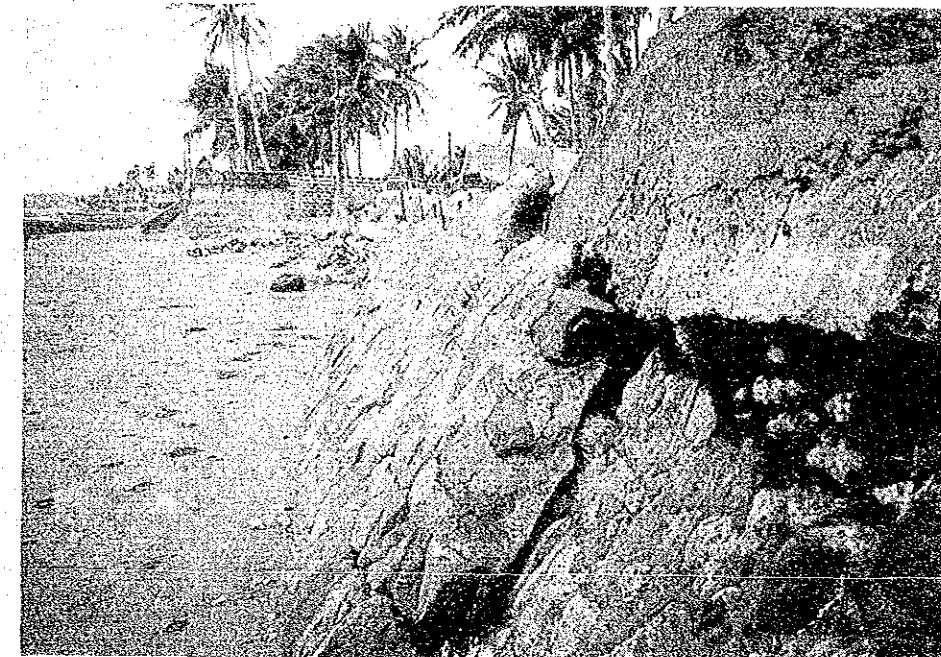
2) Damage Identified

- Type of Disaster: Collapsed Seawall
- Magnitude of Damage: 42m totally collapsed adjacent to Private Resort; 18m partly damaged near Banoyo Bailey Bridge
- Date Noticed:
- Degree/Period of Traffic Interruption: Low/None
- Description of Disaster:

This seawall was primarily constructed at the early part of 70's with a total length of 200 meters and with a height of 2.1m from the foundation. Maximum wave height experienced then was about 1.5m. After a few years, the seawave action has gone beyond the height of the existing seawall which has caused the overflowing of the roadway along the coastline. In order to protect the affected areas, additional seawall was proposed and constructed in the last quarter of 1987 with an additional height of 1.5m. During strong typhoon with heavy rains on Nov. 1988, a portion of the seawall of about 42m long adjacent to the private resort has totally collapsed and partly damaged the additional structure of about 18m near the Banoyo Bailey Bridge.

3) Causes of Damage

For this particular spot, the damage was basically due to strong seawaves and backwash wave action which was aggravated by poor construction method taking into account that construction joint might not be properly constructed and not enough mortar was applied to the structure.



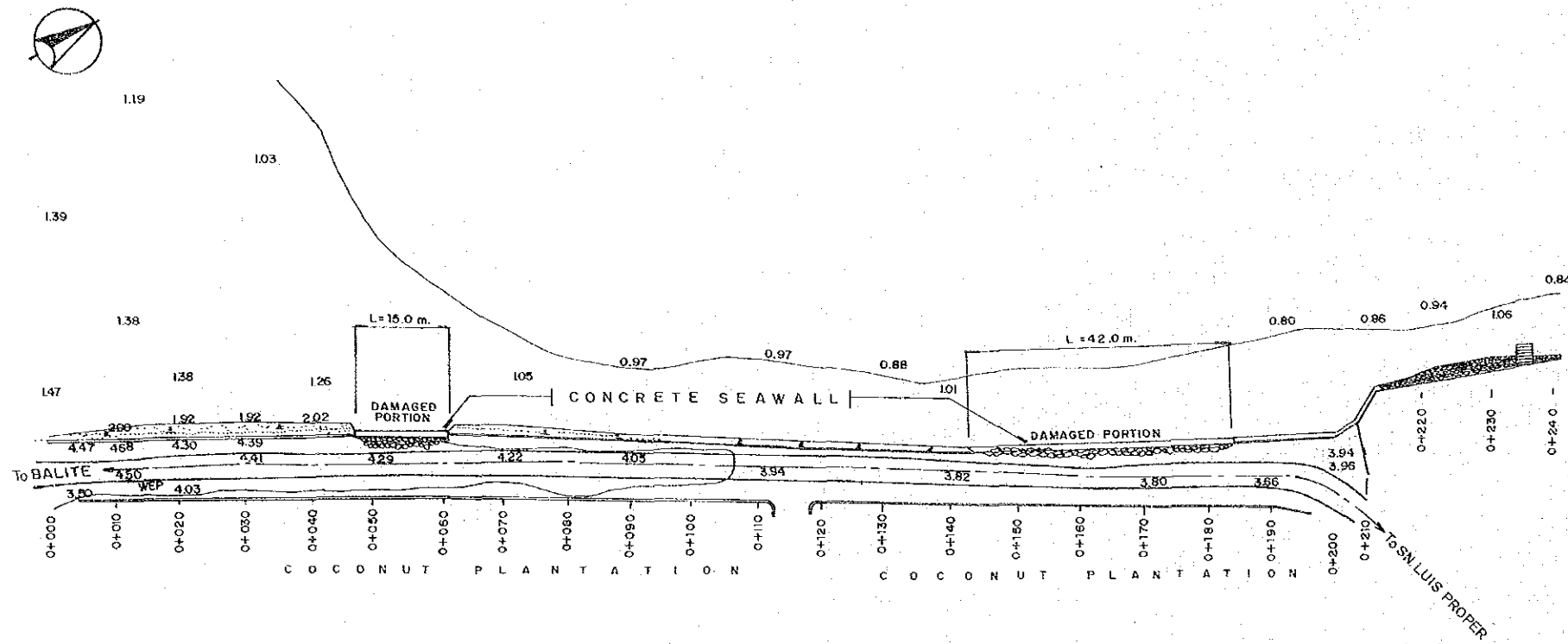
VIEW

PROVINCE: **BATANGAS**
 SPOT No. : **Bs-51(2/2)**

NAME OF ROAD : **STA. MARIA-BANOYO-SAN LUIS ROAD**
 ROAD CLASSIFICATION: **PROVINCIAL ROAD**

TYPE OF DISASTER : **SEAWALL DAMAGE**

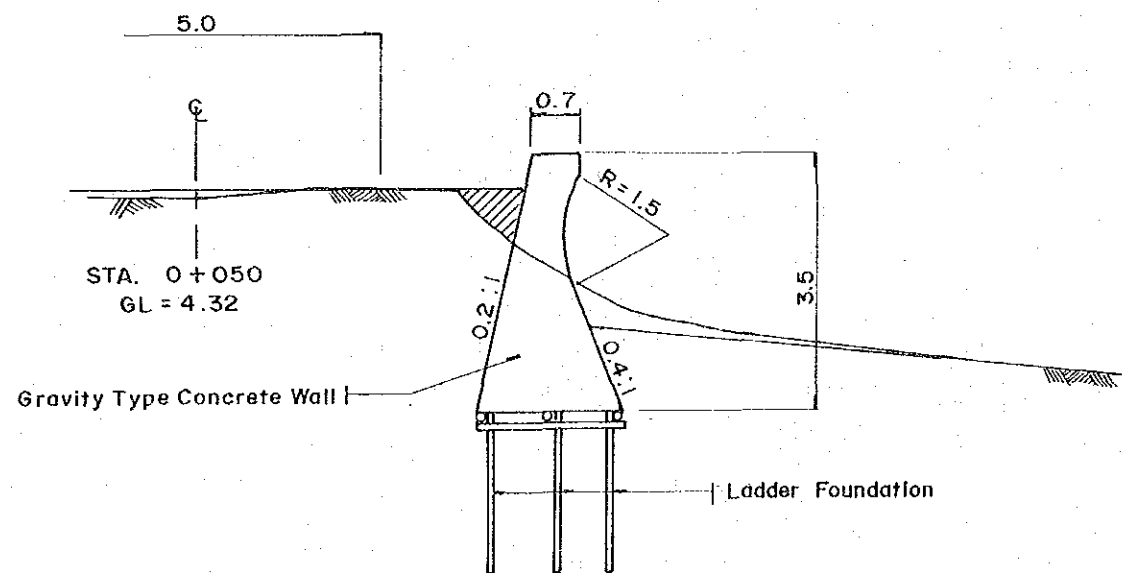
DRAWING NO.
107



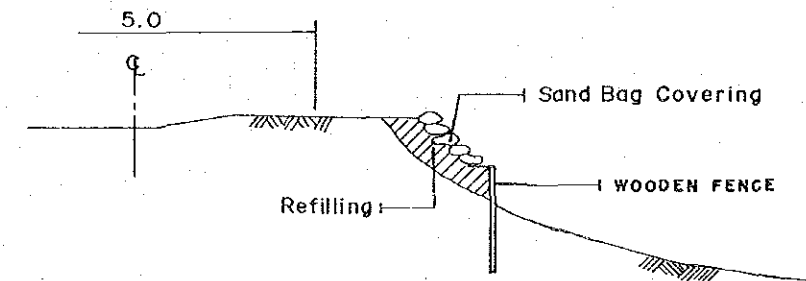
P L A N
 SCALE 1:1000

SUMMARY OF QUANTITY

		UNIT	TOTAL
PERMANENT RESTORATION			
P6-5	GRAVITY TYPE CONCRETE WALL (WITH LADDER FOUNDATION)	L.M.	57
URGENT RESTORATION			
U1-4	REFILLING	CU.M.	43
U3-2	SAND BAG COVERING	SQ.M.	57
U4-3	WOODEN FENCE	L.M.	57



CROSS SECTION
 SCALE 1:100



CROSS SECTION FOR URGENT RESTORATION
 SCALE 1:100

PROVINCE: **BATANGAS**
SPOT No. : **Bs - 53 (1/2)**

NAME OF ROAD : **TIQUIWAN JCT. - PINAGSIBAAN ROAD**
ROAD CLASSIFICATION : **PROVINCIAL ROAD**

TYPE OF DISASTER : **FLOODED/MUDDY ROAD SURFACE**

DRAWING NO.
108

Batangas Spot No. 53 (BS-53)

1) General Situation

- Disaster Classification: FM-Rd.
- Road Name: Tiquiwan Jct. - Pinagsibaan Jct.
- Location : km. 2+000 from Tiquiwan Jct. to Rosario/San Juan
- Road Class/Office Concerned: Provincial Road/Provincial Eng'g Office

- Municipalities/Barangays connected:

The section is a minor road connecting Brgys. Tiquiwan and Pinagsibaan of Rosario Town.

- Road Width/Pavement Width: 13.5m
- Pavement Type: Gravel
- Surface Condition: Bad
- Detour: Available

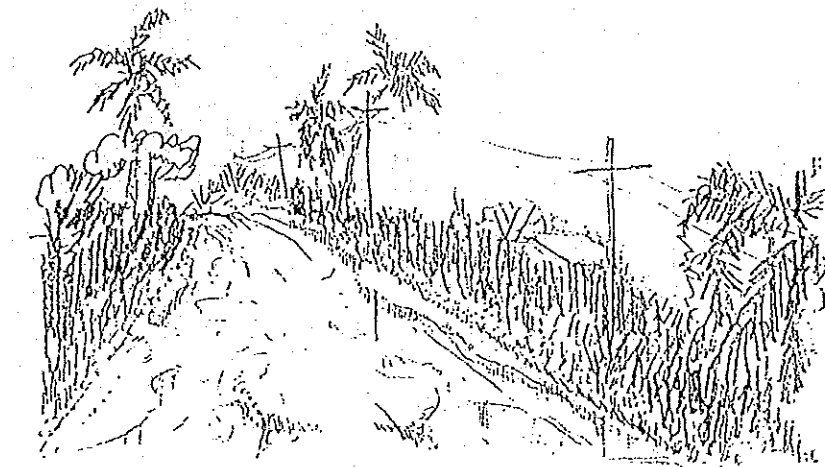
2) Damage Identified

- Type of Disaster: Floody/Muddy Road
- Magnitude of Damage: 2.0 kms
- Date Noticed: Every rainy seasons
- Degree/Period of Traffic Interruptions: Low/None
- Description of Disaster:

From Tiquiwan Jct. up to the selected spot of about 2.0 km, the whole length has experienced floody/muddy road in which transportation could hardly traverse during rainy seasons. The drainage by now is ineffective considering side drain is already silted and vegetated.

3) Causes of Damage

This damage was caused by higher elevation of abutting lands on both sides compared to that of the road surface and insufficient drainage facilities.



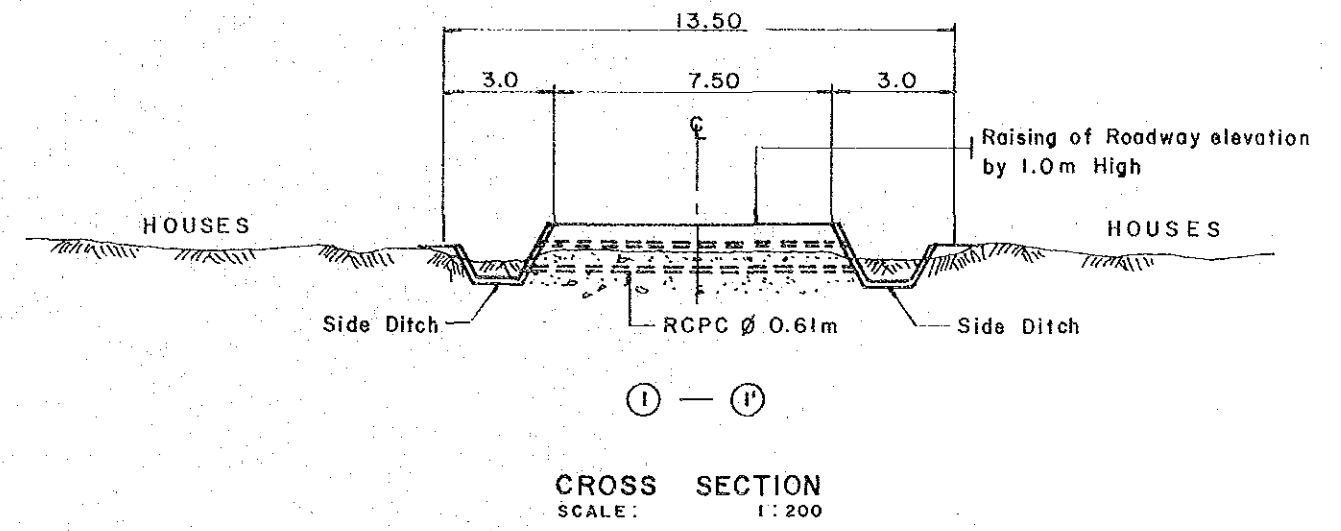
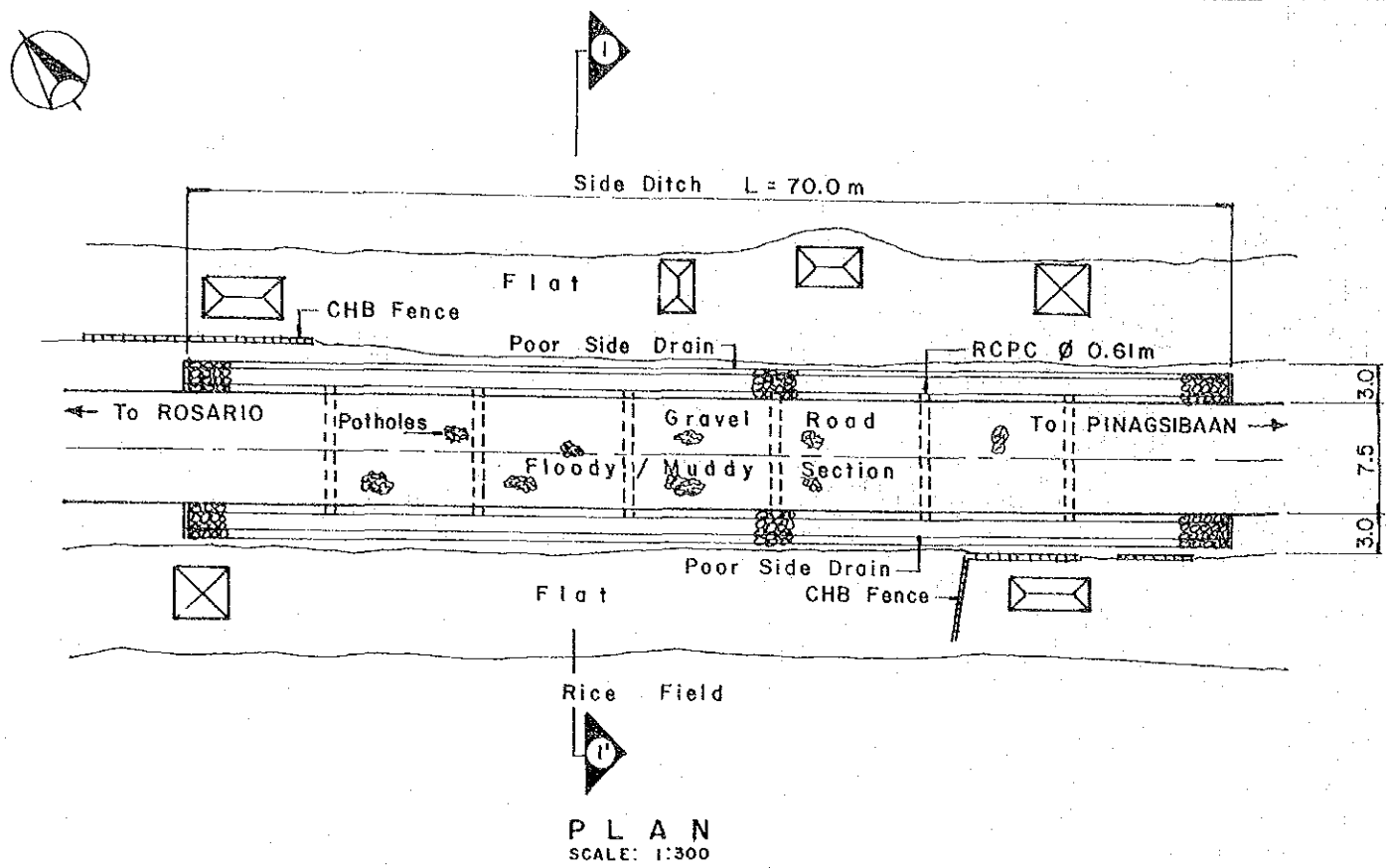
VIEW

PROVINCE: **BATANGAS**
 SPOT No. : **Bs-53(2/2)**

NAME OF ROAD : **TIQUIWAN JCT. -- PINAGSIBAAN ROAD**
 ROAD CLASSIFICATION : **PROVINCIAL ROAD**

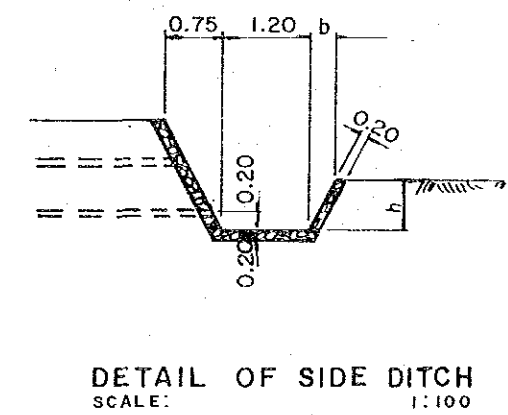
TYPE OF DISASTER : **FLOODED / MUDDY ROAD SURFACE**

DRAWING NO. **109**



SUMMARY OF QUANTITY

	TYPE OF WORK	UNIT	TOTAL
PERMANENT RESTORATION			
P2-2	SIDE DITCH	L.M	140
P2-4	R.C.P.C. 0.61m ϕ	L.M	48
P19-1	GRAVEL SURFACING	SQ.M	525
PI-3	REFILLING / EMBANKMENT	CU.M.	446



PROVINCE: **BATANGAS**
SPOT No. : **Bs - 62(1/2)**

NAME OF ROAD : **TIPAS JCT. - PINAGBAYANAN ROAD**
ROAD CLASSIFICATION : **PROVINCIAL ROAD**

TYPE OF DISASTER : **TEMPORARY BRIDGE WASHOUT**

DRAWING NO.
110

Batangas Spot No. 62 (BS-62)

1) General Situation

- Disaster Classification: TBR-W.
- Road Name: Tipas Jct. - Pinagbayanan
- Location: km. 2+800 from Tipas Jct. to Candelaria, Quezon
- Road Class/Office Concerned: Provincial Road/Provincial Eng'g Office

- Municipalities/Barangays connected:

The section is a minor road connecting Brgys. Tipas and Pinagsibaan of San Juan Town.

- Road Width/Pavement Width: 5.5m
- Pavement Type: Gravel
- Surface Condition: Bad/Very Bad
- Detour: None

2) Damage Identified

- Type of Disaster: Timber beams/flooring and one abutment washed out.
- Magnitude of Damage: Bridge length = 8.0m
- Date Noticed:
- Degree/Period of Traffic Interruption: Road closed, but soon after the damage, bailey bridge constructed.
- Description of Disaster:

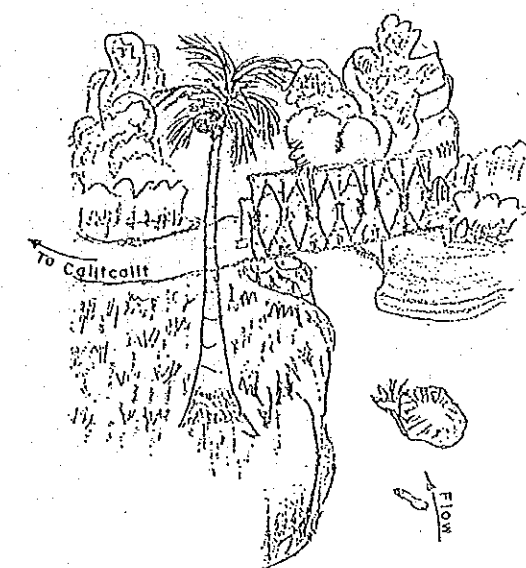
A Bailey Bridge with a total length of 9.0 meters, 1-span was located in Barrio Pootol. Considering the topography of this area which is in flat terrain and of low elevation, all the flood waters coming from Rosario, San Juan, Taysan and as far as Laguna and Quezon are drained at this place. Highest flood level during heavy rains reaches a maximum of 1.50m from the road surface. Damage to properties, infrastructures such as school buildings, roads and bridges and agricultural crops are heavily affected.

Timber beams/flooring and Tipas side abutment were washed out in 1990. Provincial Engineering Office (PEO) constructed/erected bailey bridge. Washed-out abutment was not newly constructed, however, the bailey bridge is supported on natural rock.

3) Causes of Damage

Causes of damage are due to the following reasons:

- Denuded mountains which could not hold rainwater.
- Lack of flood control measures such as dikes and dams.
- Very low and flat terrain condition.



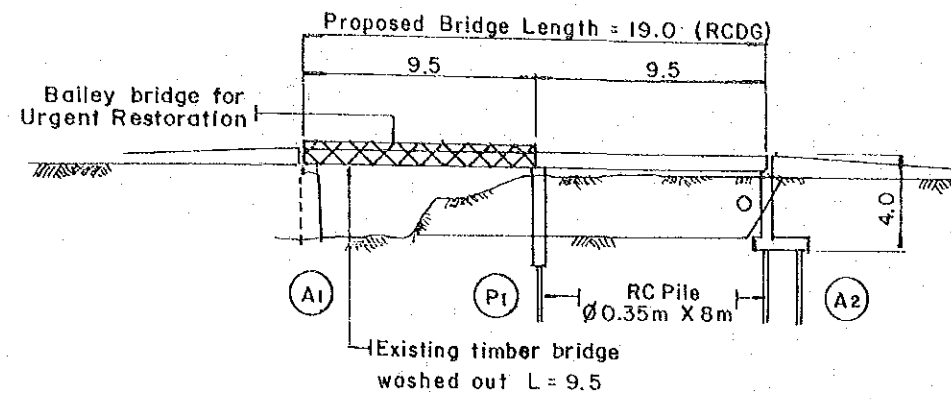
VIEW

PROVINCE: **BATANGAS**
 SPOT No. : **Bs-62(2/2)**

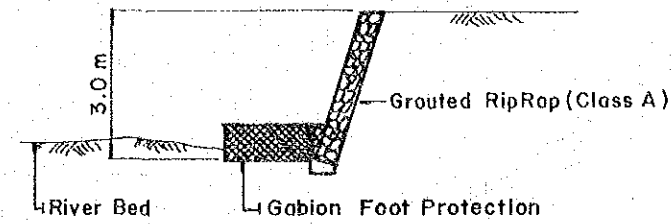
NAME OF ROAD : **TIPAS JCT. - PINAGBAYANAN ROAD**
 ROAD CLASSIFICATION : **PROVINCIAL ROAD**

TYPE OF DISASTER : **TEMPORARY BRIDGE WASH OUT**

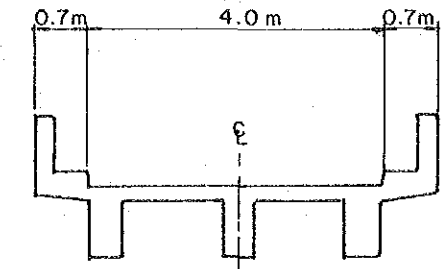
DRAWING NO. **111**



ELEVATION
 SCALE: 1:300

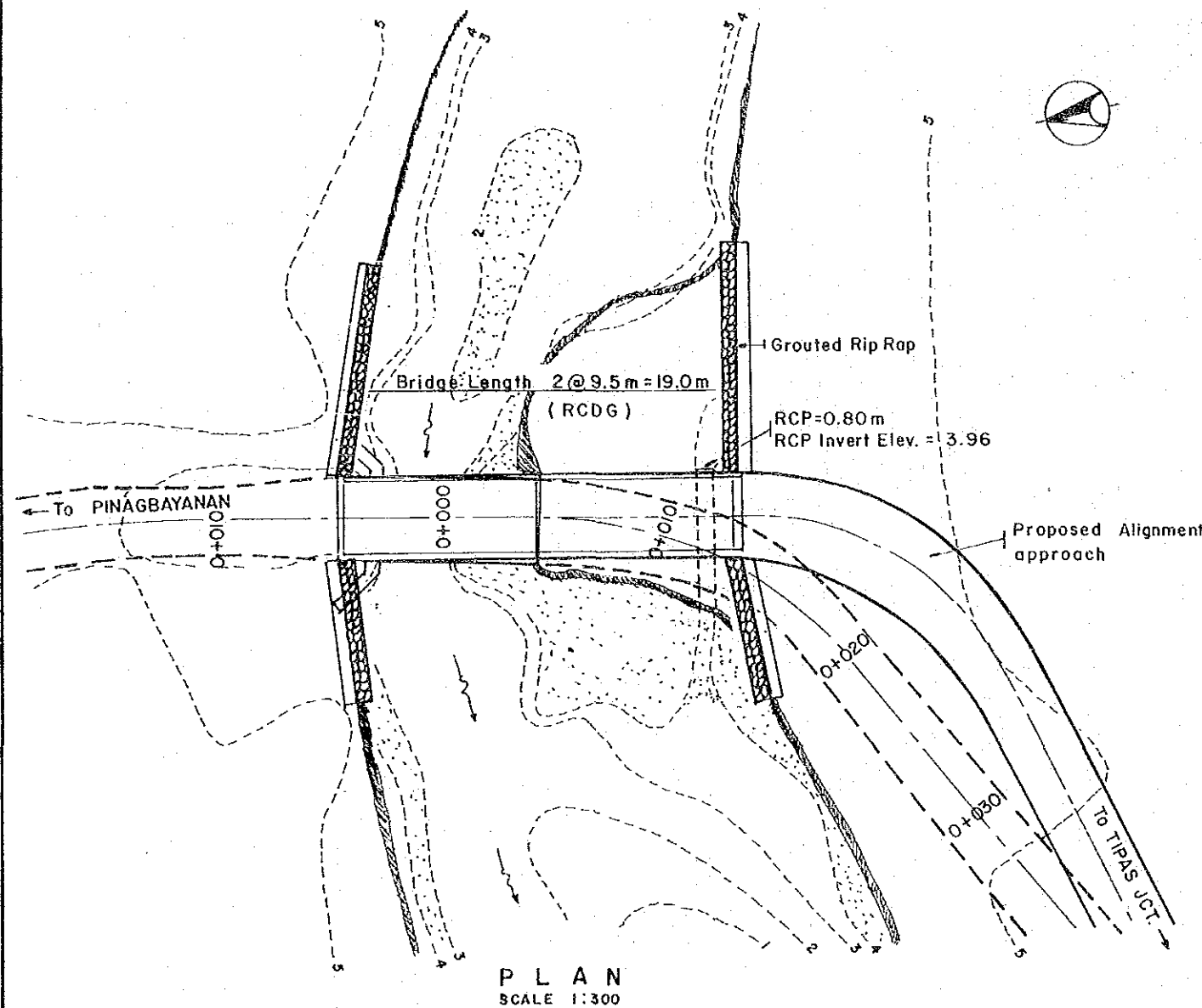


RIVER BANK PROTECTION



SUPER STRUCTURE

TYPICAL CROSS SECTION
 SCALE: 1:100



PLAN
 SCALE 1:300

SUMMARY OF QUANTITY

TYPE OF WORK		UNIT	TOTAL
PERMANENT RESTORATION			
P6-2	GROUTED RIPRAP	CU.M.	35
P15-1	CONCRETE BRIDGE	L.M.	19
P16-2	GABION FOOT PROTECTION	CU.M.	26
P19-1	GRAVEL SURFACING	SQ.M.	240
P1-3	REFILLING/EMBANKMENT	CU.M.	120
URGENT RESTORATION			
U6-2	H-PILE BENT	L.M.	40
U6-3	BAILEY BRIDGE	L.M.	12

URGENT RESTORATION

- * Construct 9.5 m. Bailey Bridge on H Pile in first approach of existing Timber Bridge.

PERMANENT RESTORATION RCDG L=19.0m A2 Abut and approach

- * Construct New RCDG bridge Serve as Pier and Additional Abutment on RC. Pile.
- * Re-alignment of the first approach of the bridge.

PROVINCE: **BATANGAS**
SPOT No. : **Bs-66(1/2)**

NAME OF ROAD : **BALETE JCT.-MATAAS na KAHoy RD.**
ROAD CLASSIFICATION :

TYPE OF DISASTER : **SPILLWAY DAMAGE**

DRAWING NO.
112

Batangas Spot No. 66 (BS-66)

1) General Situation

- Disaster Classification: SPW-D
- Road Name: Balite Jct. - Mataas na Kahoy
- Location : km. 0+850 from Jct. Balete to Central School
- Road Class/Office Concerned: Provincial Road/Provincial Engineering Office

- Municipalities/Barangays connected:

The section is a minor road connecting Balete and Mataas na Kahoy towns.

- Road Width: 6.0m
- Pavement Type: Gravel
- Surface Condition: Very Bad
- Detour: None

2) Damage Identified

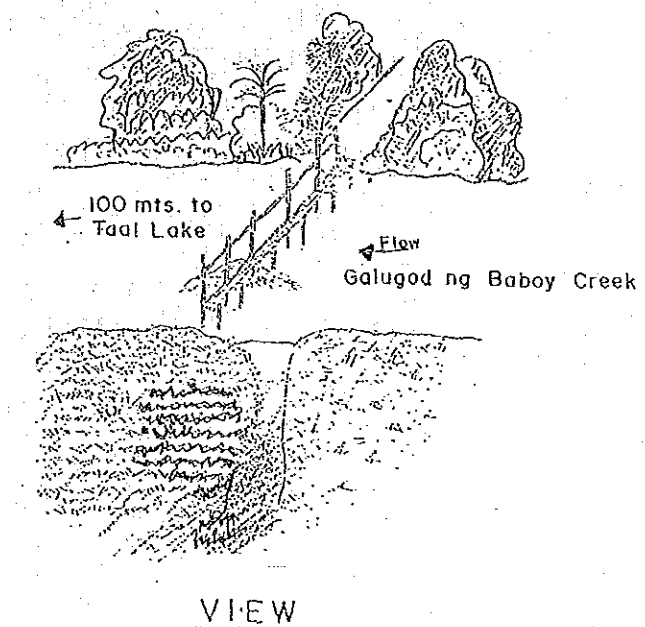
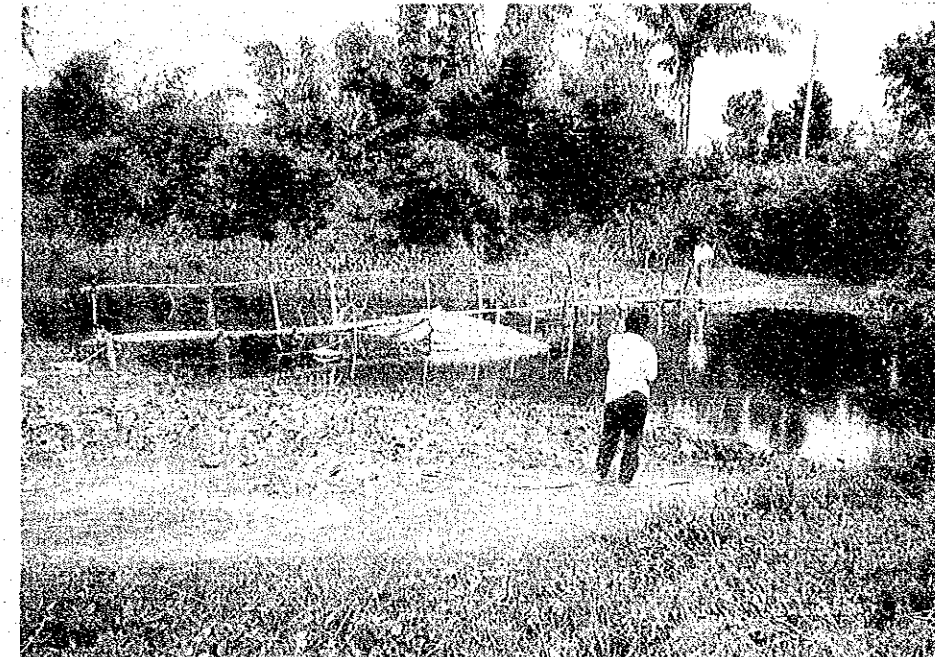
- Type of Disaster: Structure totally washed-out
- Magnitude of Damage: 21.0m
- Date Noticed: Before 1980
- Degree/Period of Traffic Interruption: High/Not passable during rainy season

- Description of Disaster:

The spillway was constructed with a total length of 21.0 meters with 10 pcs. of reinforced concrete pipe culvert (0.6m dia) underneath. During rainy season the spillway is under water by about 1.5 meters from the top of the structure. The spillway was totally washed-out in two years from the time of its construction. This has no available detour road but vehicles can traverse by crossing the creek with a water depth of about 0.6m during the season. At present, temporary Bamboo foot bridge was constructed by the local residents, and is being used to cross the waterway.

3) Causes of Damage

The immediate cause was due to the scouring of the foundation of the spillway which resulted to its collapse, thereby the structure was washed-out during heavy floods.

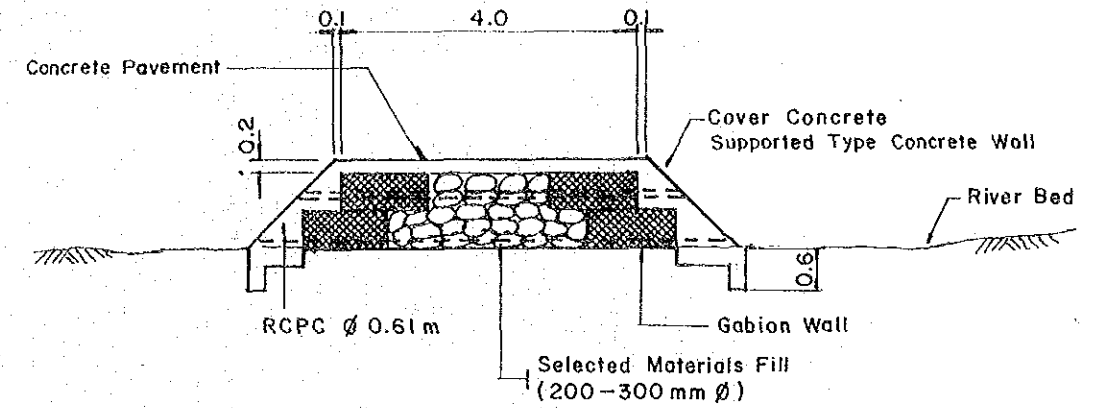
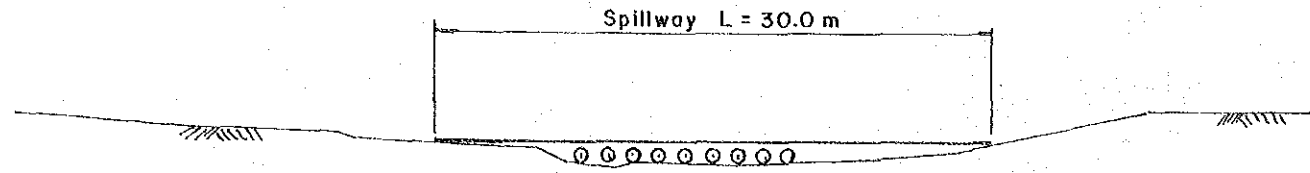


PROVINCE: **BATANGAS**
 SPOT No. : **Bs-66(2/2)**

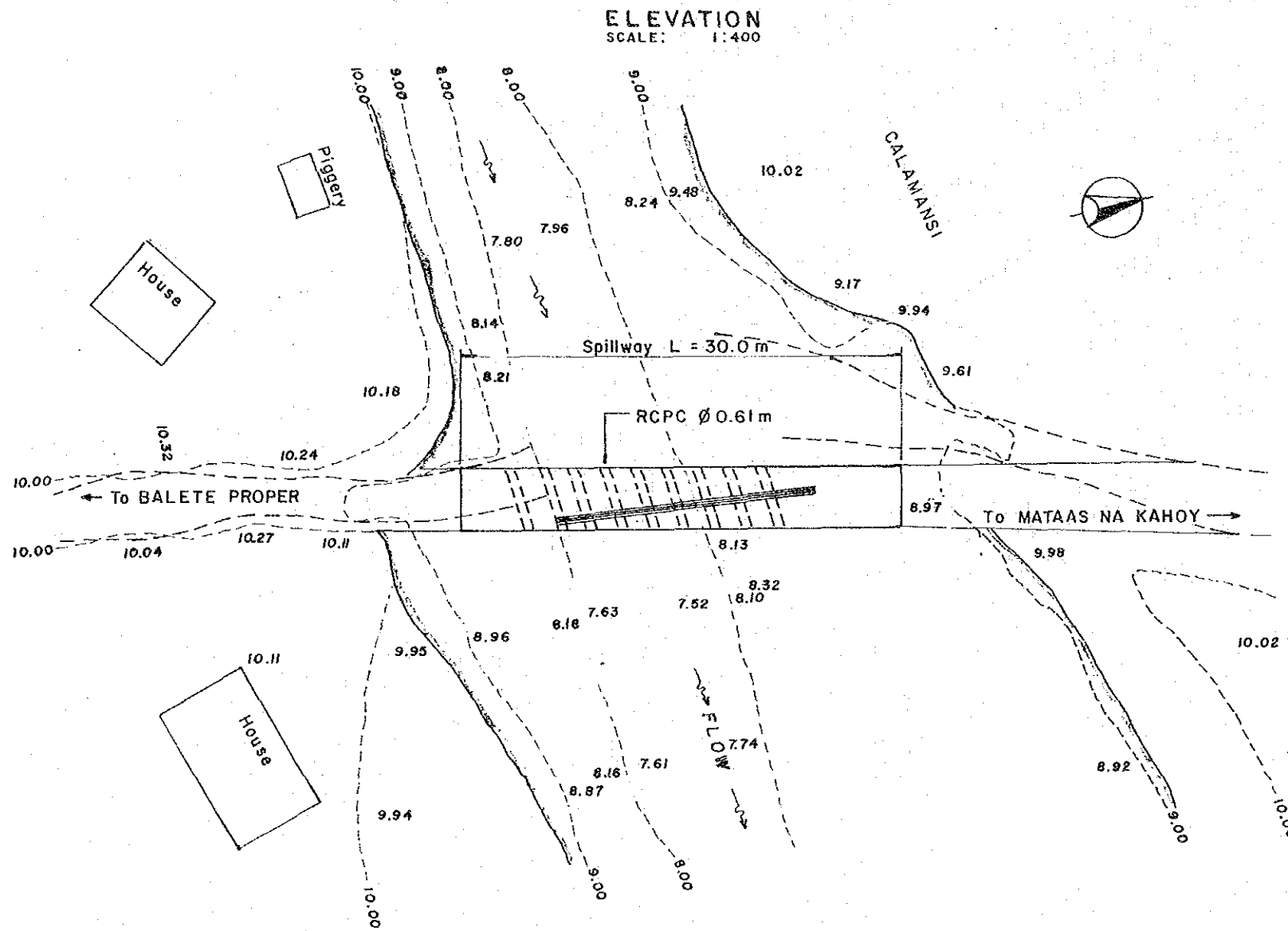
NAME OF ROAD : **BALETE JCT. - MATAAS NA KAHUY RD.**
 ROAD CLASSIFICATION : **PROVINCIAL ROAD**

TYPE OF DISASTER : **SPILLWAY DAMAGE**

DRAWING NO.
113



CROSS SECTION
 SCALE: 1:100



P L A N
 SCALE: 1:400

SUMMARY OF QUANTITY

TYPE OF WORK	UNIT	TOTAL
PERMANENT RESTORATION		
P2-4	R.C.P.C. 0.61m Ø	L.M. 64
P6-6	SUPPORTED TYPE CONCRETE WALL	CU.M. 40
P19-3	CONCRETE PAVEMENT	CU.M. 25
URGENT RESTORATION		
U1-5	SELECTED MATERIAL FILL	CU.M. 63
U4-2	GABION WALL	CU.M. 72

PERMANENT RESTORATION

* Cover Concrete

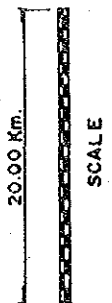
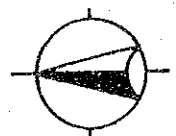
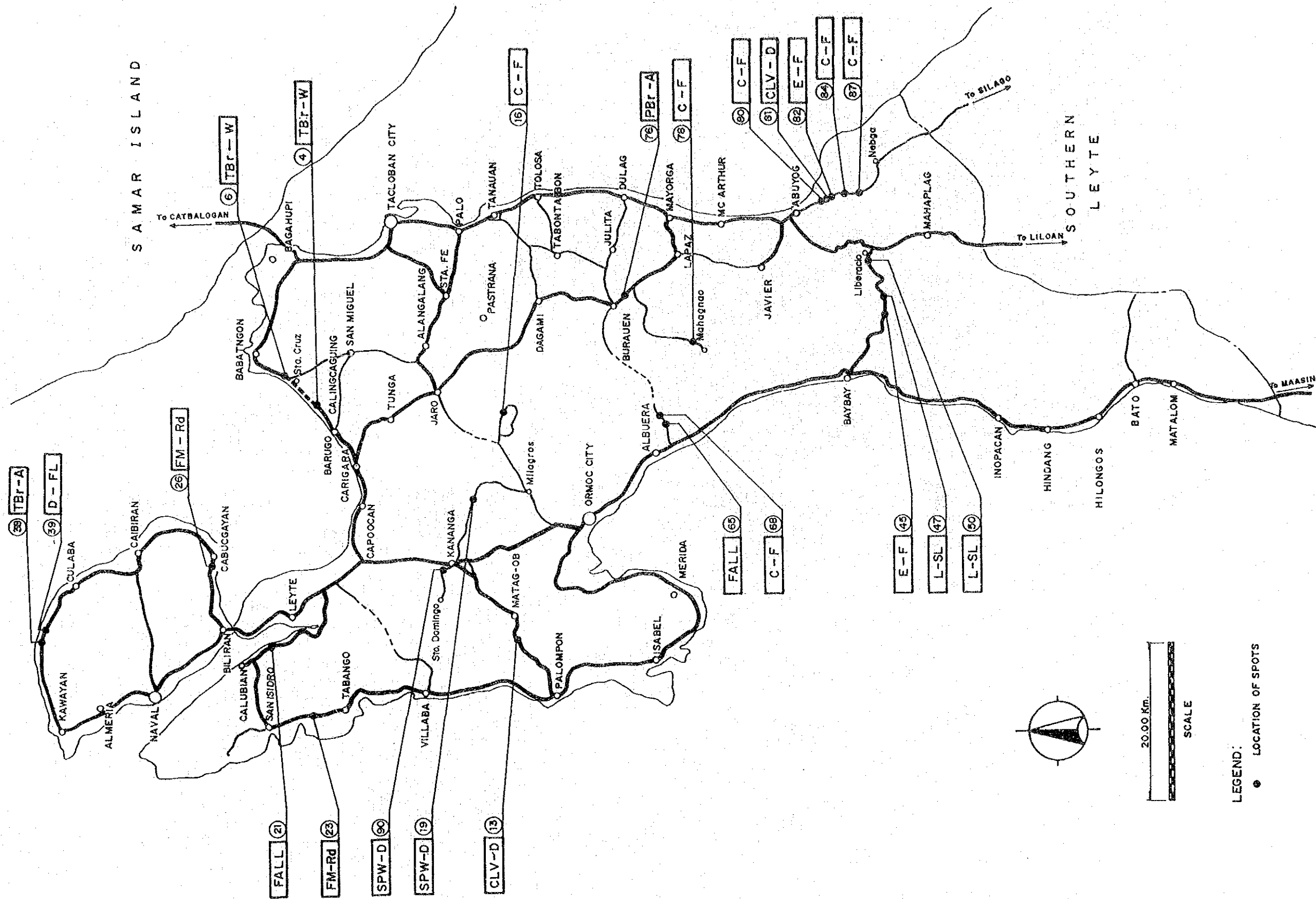
URGENT RESTORATION

* Gabions and compacted selected materials (200-300 mm Ø)

5. RESTORATION MEASURES FOR SELECTED SPOTS IN LEYTE

LOCATION OF SELECTED SPOTS IN LEYTE (1/10)

DRAWING NO.
114

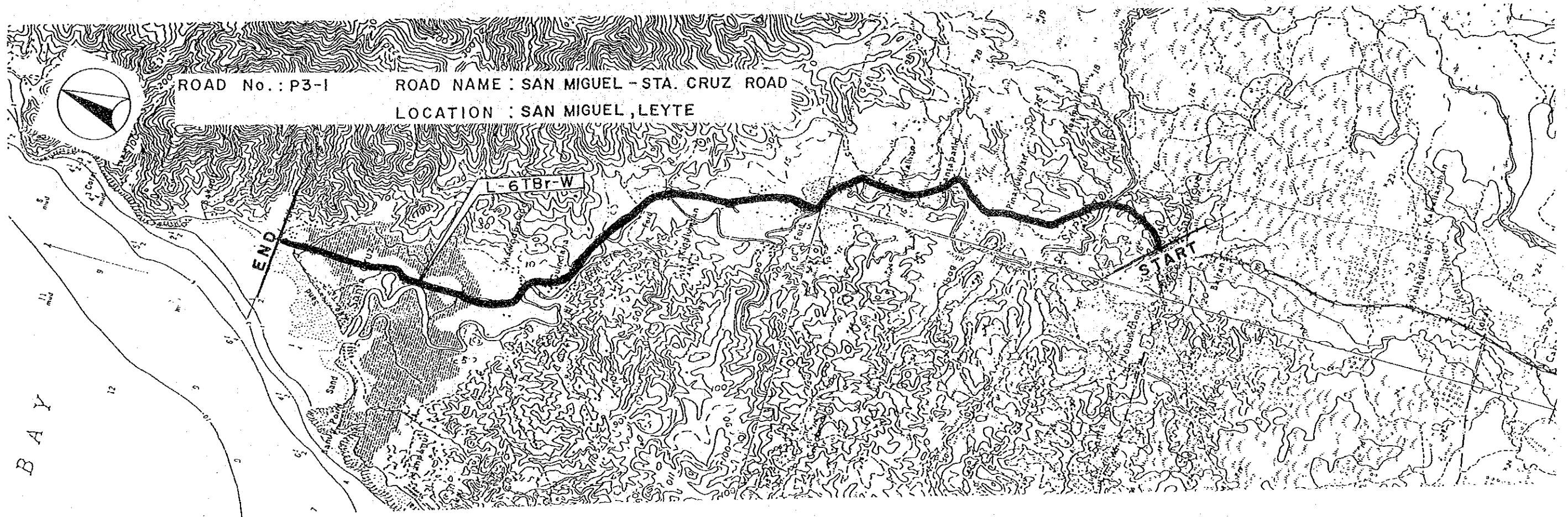
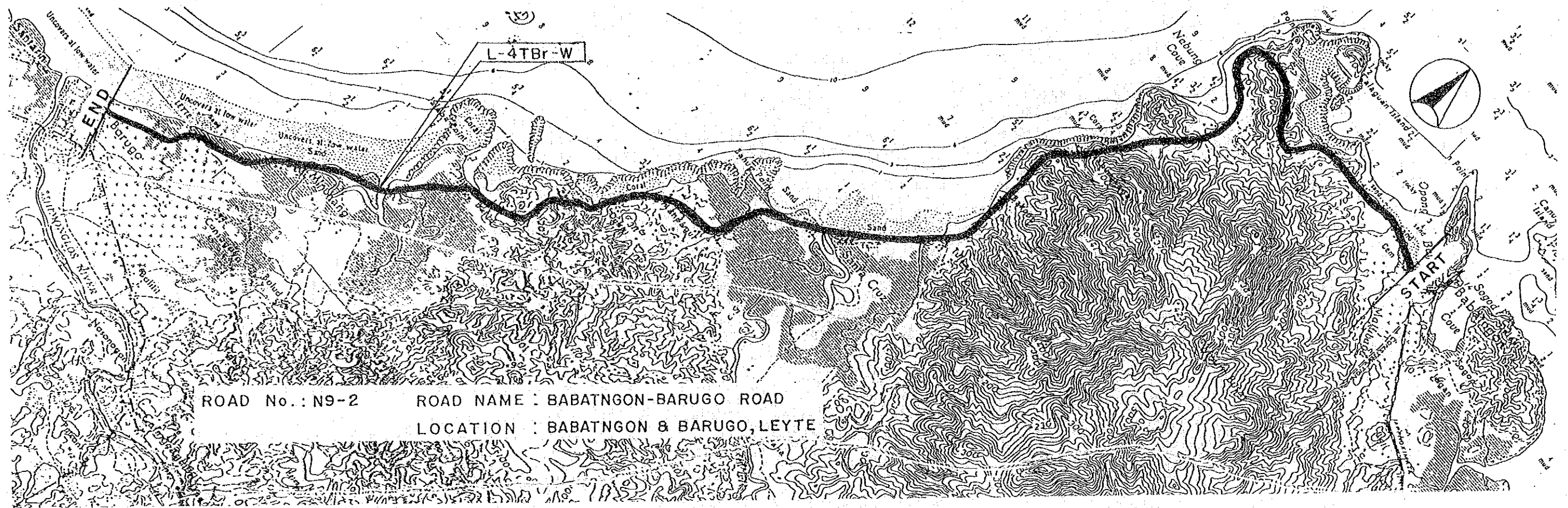


LEGEND:
● LOCATION OF SPOTS

LOCATION OF SELECTED SPOTS IN LEYTE (2/10)

Scale
1:50,000

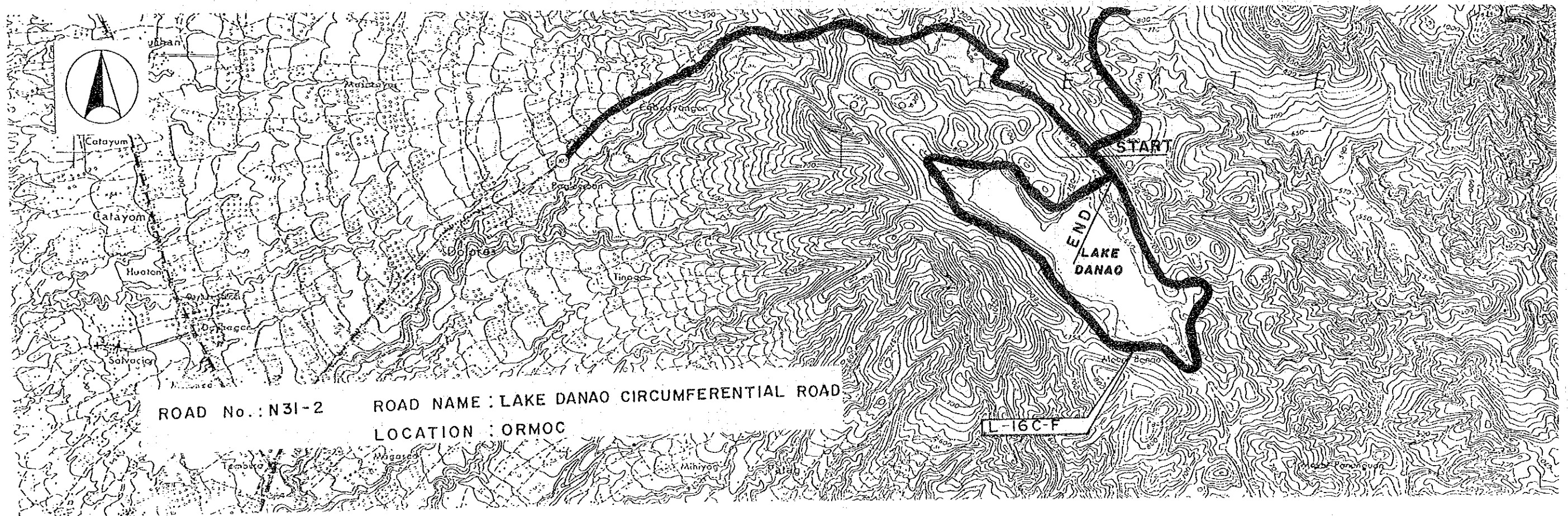
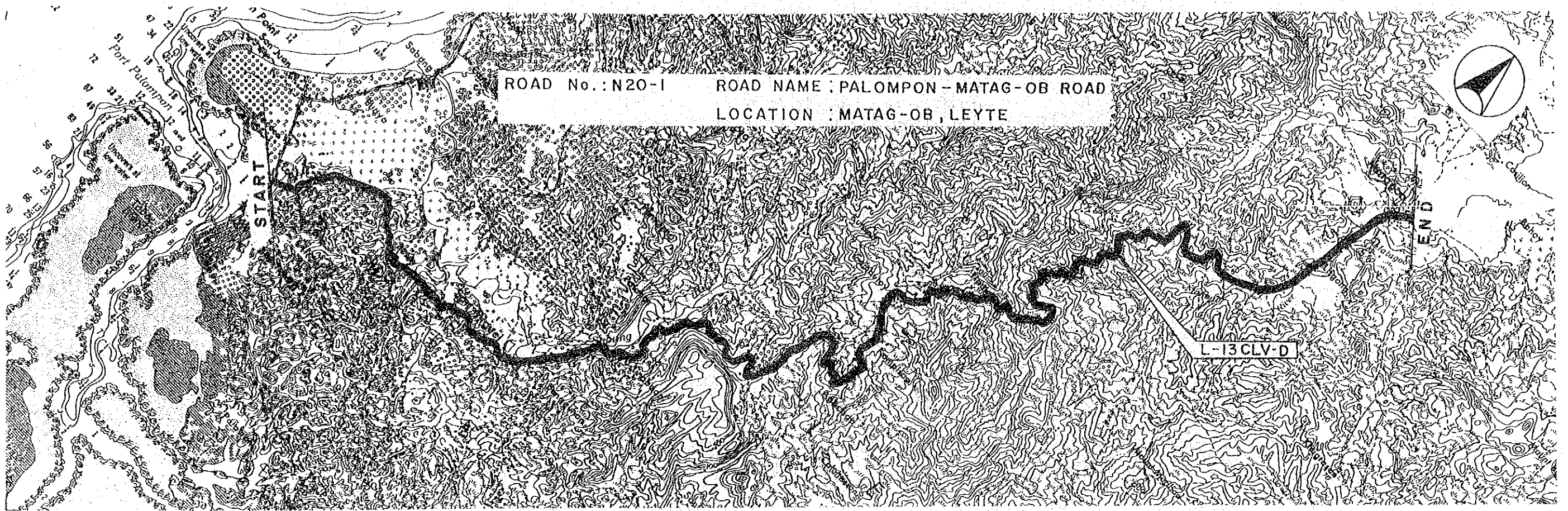
Drawing No.
115



LOCATION OF SELECTED SPOTS IN LEYTE (3/10)

Scale
1:50,000

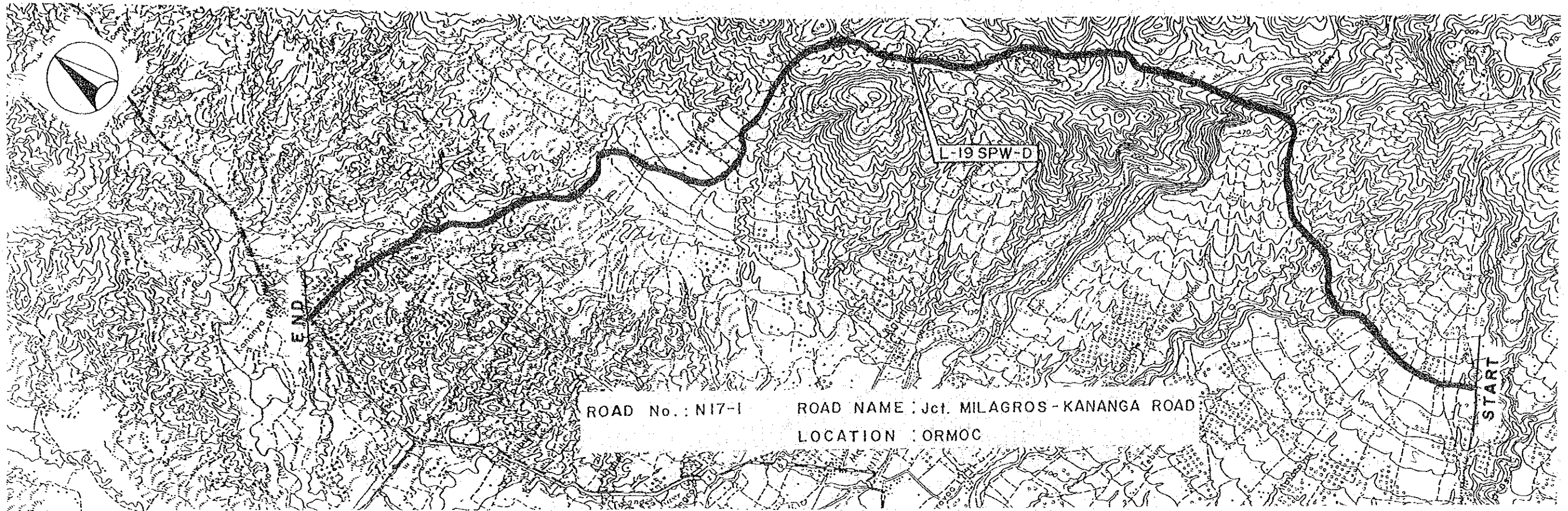
Drawing No.
116



LOCATION OF SELECTED SPOTS IN LEYTE (4/10)

Scale
1:50,000

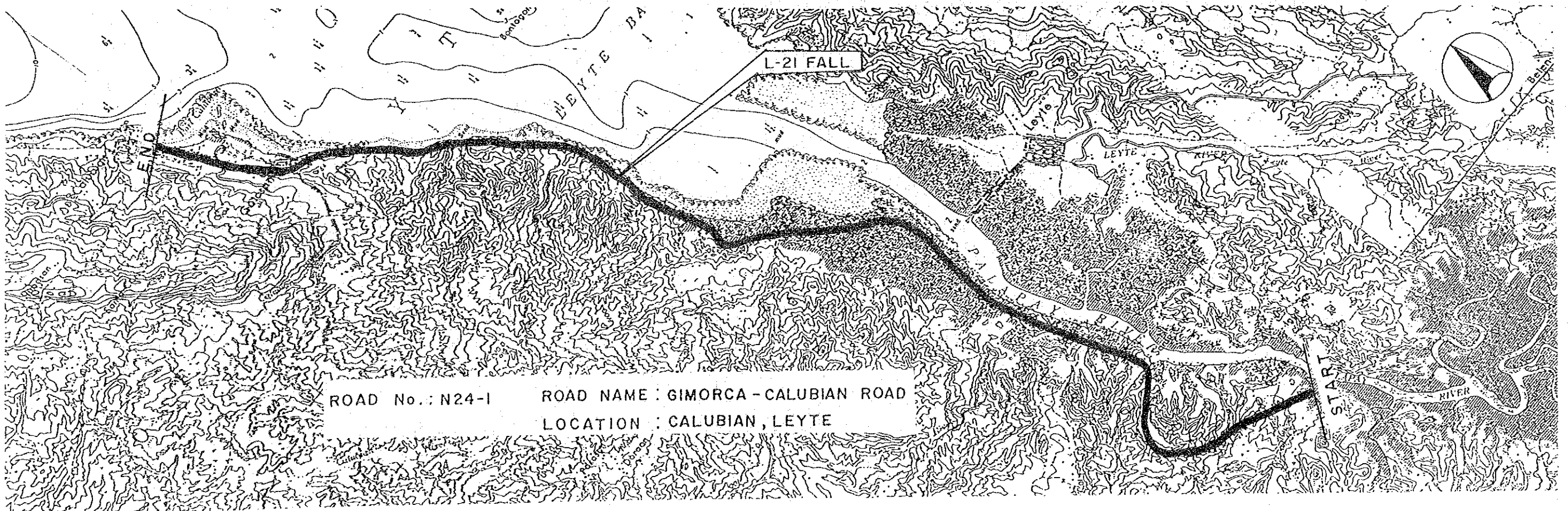
Drawing No.
117



ROAD No.: N17-1

ROAD NAME: Jct. MILAGROS - KANANGA ROAD

LOCATION: ORMOC



ROAD No.: N24-1

ROAD NAME: GIMORCA - CALUBIAN ROAD

LOCATION: CALUBIAN, LEYTE